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| EXAMINER | |
|---|---|
| NGUYEN, TOAN D | |
| ART UNIT | PAPER NUMBER |
| 2616 | |

| SHORTENED STATUTORY PERIOD OF RESPONSE | NOTIFICATION DATE | DELIVERY MODE |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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SF

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/086,576 | ABROL ET AL. | |
| | Examiner | Art Unit | |
| | Toan D. Nguyen | 2616 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *25 January 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-30,32-36 and 38-47* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *6,7,15,17-20,36 and 38* is/are allowed.

6)☒ Claim(s) *1-4,8-14,16,21-25,27-30,32,34,35 and 39-47* is/are rejected.

7)☒ Claim(s) *5,26 and 33* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 February 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 46 and 47 are rejected under 35 U.S.C. 102(b) as being anticipated by Shacher et al. (US 5,671,223).

For claim 46; Shacher et al. disclose multichannel HDLC framing/deframing machine, comprising:

a deframer (figure 4, reference 112 Receiver Rx)) operative to receive a first block of data to be deframed, detect (figure 9, reference 308) for data bytes of a first set of specific values (col. 11 line 65 to col. 12 line 1), deframe the first data block in accordance with a particular deframing scheme, and provide deframed data for the first data block (figure 7, reference step 512, col. 10 line 27 and col. 12 lines 27-57);

a framer (figure 8, reference 534 Transmitter (Tx)) operative to receive a second block of data to be framed, detect (figure 14, reference 416) for data bytes of a second set of specific values (col. 17 lines 22-23), frame (figure 8, reference step 534) the second data block in accordance with a particular framing scheme, and provide framed data for the second data block (col. 10 lines 50-51, and col. 16 lines 9); and

a controller (figure 3, reference 100) operative to direct deframing and framing by the deframer and framer, respectively (col. 6 lines 34-36).

For claim 47, Shacher et al. disclose further comprising:

a first buffer operative to store the deframed data from the deframer (figure 7, reference step 518, col. 10 line 35), and

a second buffer operative to store the framed data from the framer (figure 8, reference step 538, col. 10 lines 53-55).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1, 3, 8-14, 16, 21, 23-25, 27-30, 32, 34-35, 39, and 42-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shacher et al. (US 5,671,223) in view of Hwang (Us 6,788,652).

For claims 1, and 13, Shacher et al. disclose multichannel HDLC framing/deframing machine, comprising:

an input interface unit (figure 4, reference 120) operative to receive data to be deframed (col. 7 lines 10-11);

a detection unit (figure 9, reference 308) operative to evaluate each data byte from the input interface unit to detect for bytes of specific values (col. 11 line 65 to col. 12 line 1);

a state control unit (figure 9, reference 312) operative to provide a first set of control signals indicative of specific tasks to be performed for deframing based in part on the detected bytes of specific values (col. 12 lines 27-57).

However, Shacher et al. do not expressly disclose a conversion unit operative to deframe the received data based on the first set of control signals to provide deframed data. To include conversion unit operative to deframe the received data based on the first set of control signals to provide deframed data would have been obvious to one of ordinary skill in the art because Shacher et al. clearly teach at col. 12 lines 40-49 (see FIG.10), "The Rx Main Transfer Control circuit 312 determines whether or not the bits shifted out of the PRE register 310 are shifted into the DATA register 330... Determination whether the machine is Inframe is according to the state diagram in FIG.10. Zero deletion is triggered when Inframe and five ones are detected (FONES) by the PST detection circuit 322."

Furthermore, Shacher et al. do not expressly disclose one or more Radio Link Protocol (RLP) packets. In an analogous art, Hwang discloses one or more Radio Link Protocol (RLP) packets (col. 6 lines 47-49).

Hwang discloses wherein the data block corresponds to a single Radio Link Protocol (RLP) packet (col. 6 lines 47-49 as set forth in claim 13).

One skilled in the art would have recognized the one or more Radio Link Protocol (RLP) packets, and would have applied Hwang's RLC in Shacher et al.'s deframed. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use Hwang's radio protocol for mobile communication system and method in Shacher et al.'s multichannel HDLC framing/deframing machine with the motivation being to provide the RLC-ACK entity 130 (col. 6 line 47).

For claim 3, Shacher et al. disclose wherein the input interface unit (figure 4, reference 120) is operative to receive the data to be deframed in word of multiple bytes (col. 10 line 26) and, for each received word, provide one data byte at a time (col. 6 lines 45-46) for evaluation by the detection unit (col. 11 line 65 to col. 12 line 1).

For claim 8, Shacher et al. disclose wherein the conversion unit is operative to check each deframed packet based on a frame check sequence (FCS) value associated with the packet (col. 21, Table T-20, Field Name CR).

For claim 9, Shacher et al. disclose further comprising an output interface unit operative to provide a second set of control signals for storing the deframed data to an output buffer (col. 10 lines 33-35).

For claim 10, Shacher et al. disclose wherein the output interface unit is further operative to perform byte alignment of the deframed data provided by the deframer (col. 21, Table T-20, Field name NO).

For claim 11, Shacher et al. disclose wherein the deframer is operative to provide the deframed data in words of multiple bytes (Abstract line 10).

For claim 12, Shacher et al. disclose wherein the deframer is operative to deframe a block of data for each deframing operation (col. 4 lines 20-28).

For claim 14, Shacher et al. disclose a first register operative to store a value indicative of the number of deframed packets for the data block (col. 12 lines 60-64).

For claim 16, Shacher et al. disclose wherein the deframer is in one of a plurality of operating states at any given moment, and wherein the operating states include an idle state indicative of no deframing being performed and a process state indicative of deframing being performed (figure 10, col. 13 lines 30-34).

For claim 21, Shacher et al. disclose multichannel HDLC framing/deframing machine, comprising:

an input interface unit (figure 4, reference 120) operative to receive data to be framed (col. 7 lines 10-11);

a detection unit (figure 14, reference 416) operative to evaluate each data byte from the input interface unit to detect for bytes of specific values (col. 17 lines 22-23);

a state control unit (figure 14, reference 406) operative to provide a first set of control signals indicative of specific tasks to be performed for framing based in part on the detected bytes of specific values (col. 16 lines 9).

However, Shacher et al. do not expressly disclose a conversion unit operative to frame the received data based on the first set of control signals and in accordance with a particular framing scheme to provide framed data. To include the conversion unit operative to frame the received data based on the first set of control signals and in accordance with a particular framing scheme to provide framed data would have been obvious to one of ordinary skill in the art because Shacher et al. clearly teach at col. 16 lines 7-9 (see FIG.14), "This signal is one of the input signals to the Select Circuit 406, directing the Select Circuit 406 to supply a zero for zero insertion as the next bit shifted into DTA 420 and DATAO 422, unless in transparent mode."

Furthermore, Shacher et al. do not expressly disclose one or more Radio Link Protocol (RLP) packets. In an analogous art, Hwang discloses one or more Radio Link Protocol (RLP) packets (col. 6 lines 47-49).

One skilled in the art would have recognized the one or more Radio Link Protocol (RLP) packets, and would have applied Hwang's RLC in Shacher et al.'s deframed. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use Hwang's radio protocol for mobile communication system and method in Shacher et al.'s multichannel HDLC framing/deframing machine with the motivation being to provide the RLC-ACK entity 130 (col. 6 line 47).

For claim 23, Shacher et al. disclose wherein the input interface unit (figure 4, reference 120) is operative to receive the data to be framed in word of multiple bytes (col. 10 line 53) and, for each received word, provide one data byte at a time (figure 14, reference 416) for evaluation by the detection unit (col. 17 lines 22-23).

For claims 24-25, Shacher et al. disclose wherein the conversion unit is further operative to insert a flag byte in response to receiving a first command (col. 16 lines 6-9).

For claim 27, Shacher et al. disclose further comprising an output interface unit operative to provide a second set of control signals for storing the framed data to an output buffer (col. 10 lines 53-55).

For claim 28, Shacher et al. disclose wherein the output interface unit is further operative to perform byte alignment of the framed data provided by the framer (col. 21, Table T-20, Field name NO).

For claim 29, Shacher et al. disclose wherein the output interface unit is operative to provide the framed data in words of multiple bytes (col. 10 lines 53-55).

For claim 30, Shacher et al. disclose wherein the framer is operative to frame a block of data for each framing operation (col. 4 lines 20-28).

For claims 32 and 34, Shacher et al. disclose wherein the framer is in one of a plurality of operating states at any given moment, and wherein the operating states include an idle state indicative of no framing being performed and a process state indicative of framing being performed (col. 17 lines 10-30).

For claim 35, Shacher et al. disclose a first register operative to store a value indicative of the number of framed packets for the data block (col. 16 lines 60-62).

For claim 39, Shacher et al. disclose multichannel HDLC framing/deframing machine, comprising:

a deframer (figure 4, reference 112 Receiver Rx)) operative to receive a first block of data to be deframed, detect (figure 9, reference 308) for data bytes of a first set of specific values (col. 11 line 65 to col. 12 line 1), deframe the first data block in accordance with a particular deframing schemes and provide deframed data for the first data block (figure 7, reference step 512, col. 10 line 27 and col. 12 lines 27-57); and

a framer (figure 8, reference 534 Transmitter (Tx)) operative to receive a second block of data to be framed, detect (figure 14, reference 416) for data bytes of a second set of specific values (col. 17 lines 22-23), frame (figure 8, reference step 534) the second data block in accordance with a particular framing scheme, and provide framed data for the second data block (col. 10 lines 50-51, and col. 16 lines 9).

However, Shacher et al. do not expressly disclose a Radio Link Protocol (RLP) packet. In an analogous art, Hwang discloses a Radio Link Protocol (RLP) packet (col. 6 lines 47-49).

One skilled in the art would have recognized the Radio Link Protocol (RLP) packet, and would have applied Hwang's RLC in Shacher et al.'s deframed. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use Hwang's radio protocol for mobile communication system and method in Shacher et al.'s multichannel HDLC framing/deframing machine with the motivation being to provide the RLC-ACK entity 130 (col. 6 line 47).

For claim 42, Shacher et al. disclose further comprising:

a first buffer operative to store the deframed data from the deframer (figure 7, reference step 518, col. 10 line 35).

For claim 43, Shacher et al. disclose further comprising:

a second buffer operative to store the framed data from the framer (figure 8, reference step 538, col. 10 lines 53-55).

For claim 44, Shacher et al. disclose further comprising:

at least one buffer interface unit (figre 22, reference 98) operable to retrieve the deframed data stored in the first buffer or the framed data stored in the second buffer (col. 24 lines 64-65).

For claim 45, Shacher et al. disclose wherein the deframer and framer are each operated in one of a plurality of possible operating states (figures 7 and 8, col. 10 lines 26-30 and col. 10 lines 50-52).

6. Claims 2, 22, and 40-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shacher et al. (US 5,671,223) in view of Hwang (Us 6,788,652) further in view of W. Simpson, RFC 1662.

For claim 2, 22, 40, and 41, Shacher et al. in view of Hwang do not expressly disclose wherein the data to be deframed conforms to a frame format defined by RFC1662. In an analogous art, W. Simpson discloses wherein the data to be deframed conforms to a frame format defined by RFC1662 (See 3.1. Frame Format, page 5).

W. Simpson discloses further wherein the framed data conforms to a frame format defined by RFC1662 (See 3.1. Frame Format, page 5 as set forth in claim 22), wherein the data to be deframed in the first data block and the framed data for the second data block each have a format defined by RFC1662 (See 3.1. Frame Format, page 5 as set forth in claim 40), at least one frame check sequence (FCS) generator

operative to generate an FCS value for each packet to be framed or deframed (See C.1. FSC table generator, page 18 as set forth in claim 41).

One skilled in the art would have recognized the wherein the data to be deframed in the first data block and the framed data for the second data block each have a format defined by RFC1662, and would have applied W. Simpson's frame format in Shacher et al.'s HDLC framing/deframing. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use W. Simpson's PPP in HDLC-like Framing in Shacher et al.'s multichannel HDLC framing/deframing machine with the motivation being to provide a standard method for transporting multi-protocol datagrams over point-to-point links (See Abstract).

7. Claims 4 is rejected under 35 U.S.C. 103(a) as being obvious over Shacher et al. (US 5,671,223) in view of Hwang (Us 6,788,652) further in view of Aggarwal et al. (US 6,249,525).

For claim 4, Shacher et al. disclose wherein the detection unit is operative to detect for flag byte in the received data (col. 11 line 67 to col. 12 line 1).

However, Shacher et al. in view of Hwang do not expressly disclose to detect for escape byte in the received data. In an analogous art, Aggarwal et al. disclose to detect for escape byte in the received data (col. 1 line 43).

One skilled in the art would have recognized detecting for escape byte in the received data, and would have applied Aggarwal et al.'s detecting escape characters in reception in Shacher et al.'s deframing. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use Aggarwal et al.'s method of

and apparatus for inserting and/or deleting escape characters into and from data packets and datagrams therefore on high speed data stream networking lines in Shacher et al.'s multichannel HDLC framing/deframing machine with the motivation being to provide for thus inserting escape characters for special ACCM (Asynchronous Control Character Map) bytes and/or inter-flag bytes in the stream (col. 1 lines 34-37).

***Allowable Subject Matter***

8. Claims 5, 26, and 33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. Claims 6-7, 15, 17-20, 36, and 38 are allowed.

Regarding claim 6, the prior art fails to teach a combination of the steps of:

a conversion unit operative to deframe the received data based on the first set of control signals to provide deframed data and further operative to un-escape a data byte following each detected byte in the received data, in the specific combination as recited in the claim.

Regarding claim 7, the prior art fails to teach a combination of the steps of:

a conversion unit operative to deframe the received data based on the first set of control signals to provide deframed data and further operative to provide a header word for each detected flag byte in the received data, in the specific combination as recited in the claim.

Regarding claim 15, the prior art fails to teach a combination of the steps of:

a conversion unit operative to deframe the received data based on the first set of control signals to provide deframed data, and operative to deframed a block of data for each deframing operation, and further operative to provide a first header for a start of the data block, in the specific combination as recited in the claim.

Regarding claims 18 and 19, the prior art fails to teach a combination of the steps of:

a conversion unit operative to process each data byte from the interface unit by removing flag and escape bytes, un-escaping a data byte following each escape byte, providing a header word for each flag byte, and checking each deframed packet based on a frame ckech sequence (FCS) value associated with the packet, in the specific combination as recited in the claims.

Regarding claim 20, the prior art fails to teach a combination of the steps of:

un-escaping a data byte following each detected escape byte, in the specific combination as recited in the claim.

Regarding claim 36, the prior art fails to teach a combination of the steps of:

a conversion unit operative to process each data byte from the interface unit to frame the received data by inserting an escaped byte for each data byte to be escaped and escaping the data byte, inserting a flag byte in response to receiving a first command, and inserting an FCS value in response to receiving a second command, in the specific combination as recited in the claim.

Regarding claim 38, the prior art fails to teach a combination of the steps of:

providing a status signal indicative of each data byte to be escaped; and

inserting an escape byte for each data byte to be escaped and escaping the data byte, in the specific combination as recited in the claim.

***Response to Arguments***

10. Applicant's arguments with respect to claims 1-30, 32-36, and 38-47 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toan D. Nguyen whose telephone number is 571-272-3153. The examiner can normally be reached on M-F (7:00AM-4:30PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Huy Vu can be reached on 571-272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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